



I-80 SMART* Corridor

* Safety, Mobility, and Automated Real-time Traffic Management

The Interstate 80 SMART Corridor project is an intelligent transportation system that is designed to enhance safety, improve travel time reliability, and reduce accidents and congestion by implementing traffic operations strategies, such as adaptive ramp metering and active traffic management, along a 20-mile section of I-80 from the Bay Bridge Toll Plaza to the Carquinez Bridge.

The I-80 corridor has ranked as one of the most congested corridors in the entire San Francisco Bay Area in the last decade, with traffic volumes reaching more than 310,000 vehicles per day and an average of 7,500 hours of delay daily. Meanwhile, congestion was expected to rise significantly as population increased if this project was not completed. Upon completion, vehicle hours of delay are expected to decrease by 22 percent during the morning commute and by 10 percent in the evening commute. Average freeway speed is expected to increase by 5 percent in the morning.

The project's success will rely on its ability to reduce traffic congestion, improve travel time and reliability, get disabled vehicles off the road quicker after major incidents and reduce greenhouse gases—all elements of the Caltrans mission and each described more in-depth in this issue of the Mile Marker. The key elements to achieving these goals, as described below, will rely on reducing secondary accidents by informing motorists of congestion ahead and activating ramp metering, which will both improve travel time and reduce congestion.

Reduces Traffic Congestion

The implementation of active traffic management will be done by monitoring traffic operations through the use of closed-circuit television cameras and traffic detection devices.

Components include adjusting the ramp metering rate, but also activating various electronic signs to show advisory speed, which lane to merge into if a lane is blocked ahead, travel time and transit information, as well as redirecting detoured traffic back to the freeway past an incident. To improve traffic flow conditions, either during recurring or incident-related congestion, traffic information from the cameras and loops will be transferred to the traffic management center (TMC) to adjust “green time” rates of ramp metering signals and activate various devices, such as variable advisory speed signs, lane use signs and information display boards.

Improves Travel Time Reliability

Travel time reliability is measured by transportation specialists who use a “buffer time index,” the time cushion travelers add to their average travel time to ensure that they get to their destination when planned. Reliable travel means drivers need to add less than 20 percent travel time to the average trip to get to their destination on time 95 percent of the time.

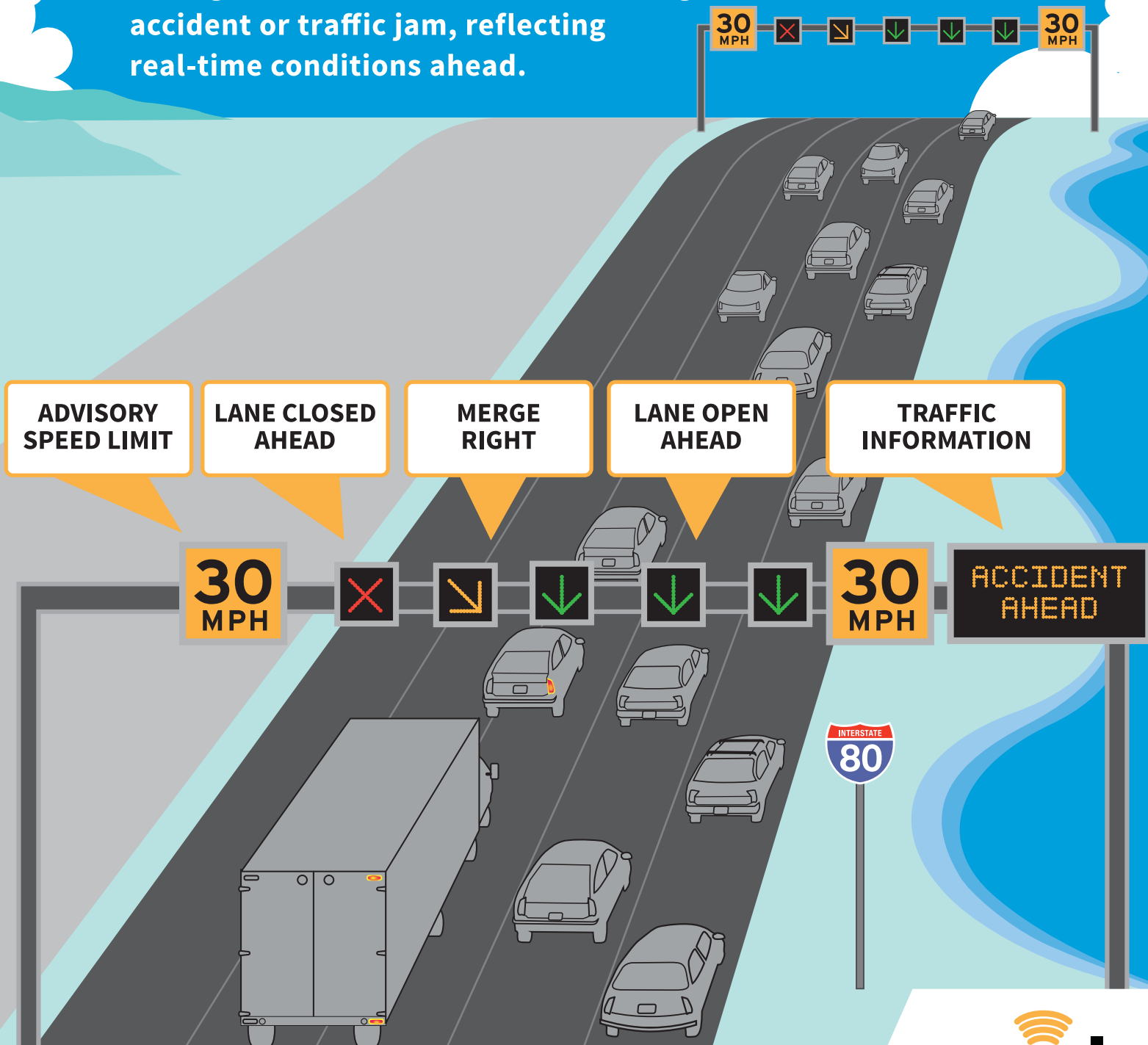
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Caltrans uses several methods to measure expected travel time and communicate those times to motorists so they can plan their trip. In this project, some corridor management devices, such as variable message signs and information display boards are being used for the first time in California. Lane use signs will be used to communicate with drivers that the lane is blocked ahead due to a stalled vehicle or incident and the driver should be merging to the adjacent lane. Variable advisory speed signs will be activated in case of an incident that will require vehicles at high speed to slow down ahead of the queue so that secondary accidents can be avoided. A very robust public information and educational outreach plan has been developed and is being implemented. The goal is for drivers to understand the purpose of the project and know how to “react” once the various devices are turned on in late 2015.

The New Overhead Signs on Westbound I-80: A SMARTer Way to Drive



Overhead signs on Westbound I-80 between Richmond and Emeryville will light up when there is an upcoming accident or traffic jam, reflecting real-time conditions ahead.

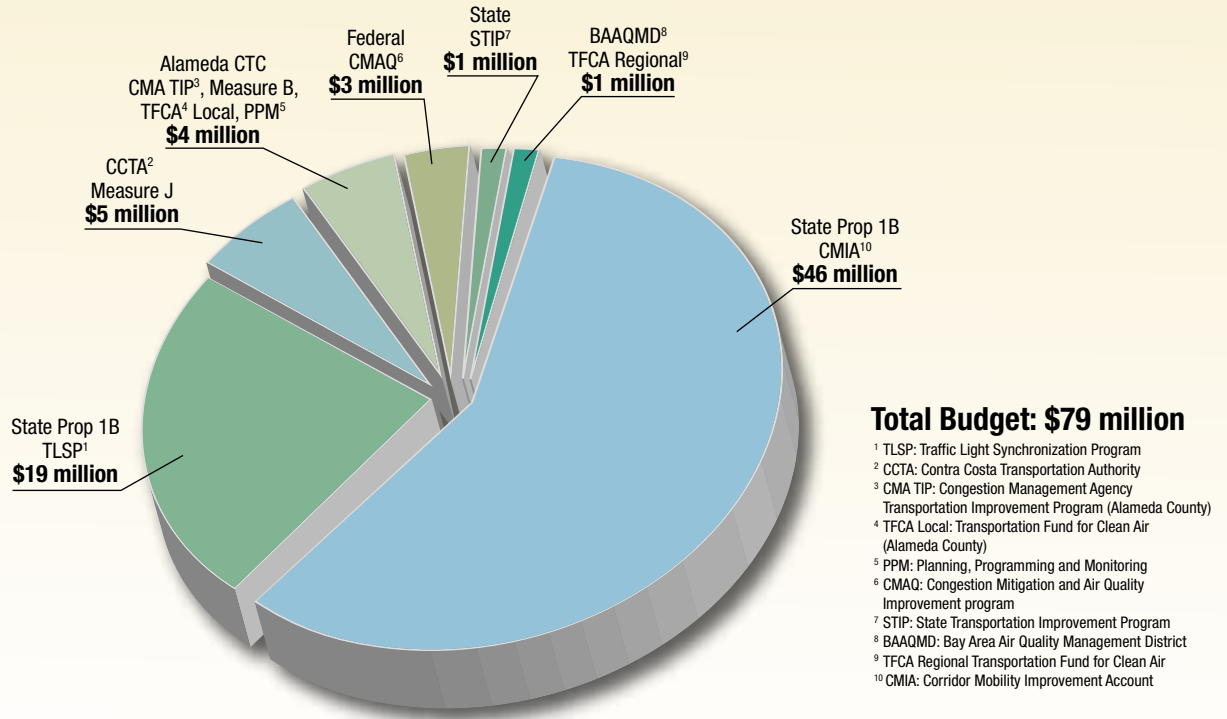


**Giving Drivers More Information
Means Fewer Accidents and a Safer I-80**



I-80 SMART Corridor Project

Most Funding Comes from Voter-Approved Sources



Speeds Up Incident Clearances

The I-80 SMART Corridor project incident management component provides real-time information to motorists in the event of an incident to reduce unexpected lane changes, provide easier access for emergency response vehicles and reduce secondary accidents and congestion associated with such incidents.

The information gathered through vehicle detection devices will alert the TMC operator about any traffic incidents and/or congestion. The operator then can monitor the freeway and ramps via closed-circuit television cameras, activate incident response strategies, and display real-time traveler information to the motorists on the freeway. During any major incidents on the freeway, the TMC operator would also coordinate the emergency response with local authorities to ensure a coordinated and efficient response. Electronic signage provides advance warning of accidents, improves safety and guides detouring drivers back to I-80.

Reduces Greenhouse Gases

All of the above actions are created to keep traffic flowing more smoothly and predictably on I-80. Traffic congestion is a known contributor to greenhouse gases as idling cars burn fuel less efficiently (with fewer miles per gallon). One of the project elements that helps reduce idle time and increase vehicle throughput is adaptive ramp metering.

The adaptive ramp meters play an important role in the control functions of the network and the incident management, by creating a balanced traffic flow along the entire corridor and minimizing the impacts of merging traffic onto the freeway. Adaptive ramp metering will include varying metering rates based on changing upstream and downstream freeway conditions while balancing the ramp queue to avoid impacts on the local streets.

Key partners in the project included the Federal Highway Administration, Caltrans, Alameda County Transportation Commission and Contra Costa Transportation Agency, California Highway Patrol, and West Contra Costa Transportation Advisory Committee, which has members from cities in Contra Costa county and transit agencies.

Source: Caltrans District 4

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